

Bellwork: 11/14/12

Convert the following to vertex form. Then graph.

$$y = -2x^2 + 8x - 7$$

$$a = -2 \quad b = 8 \quad c = -7$$

vertex:

x value

$$\frac{-b}{2a} = \frac{-8}{2(-2)} = \frac{-8}{-4} = 2$$

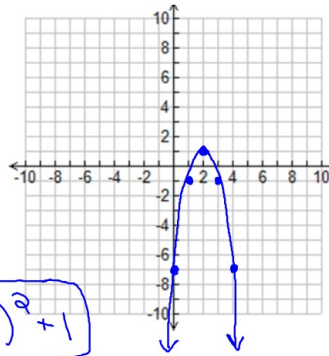
y value

$$\begin{aligned} & -2(a)^2 + 8(a) - 7 \\ & -2(2)^2 + 8(2) - 7 \\ & -8 + 16 - 7 \\ & 8 - 7 \\ & 1 \end{aligned}$$

Vertex: (2, 1)

$$a = -2$$

$$y = -2(x-2)^2 + 1$$



$$(17) \quad y = (x+3)^2$$

$$(19) \quad y = 2(x+1)^2 - 2$$

$$(26) \quad y = (x-2)^2 + 2$$

$$(27) \quad y = (x+1)^2 + 4$$

$$(30) \quad y = -2(x-2)^2 + 11$$

$$(17) \quad y = x^2 + 6x + 9$$

$$a=1 \quad b=6 \quad c=9$$

Vertex: $(-3, 0)$

$$\begin{array}{l} \text{xvalue} \\ \frac{-b}{2a} = \frac{-6}{2(1)} = \frac{-6}{2} \\ -3 \end{array} \left\{ \begin{array}{l} \text{yvalue} \\ (-3)^2 + 6(-3) + 9 \\ 9 - 18 + 9 \\ -9 + 9 \\ 0 \end{array} \right. \quad y = (x+3)^2$$

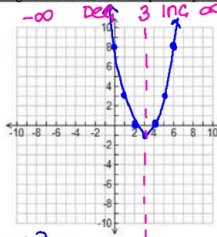
Homework:

1-8 \rightarrow given in vertex form
so just graph

9-14 \rightarrow given in standard (general)
form so must convert
to vertex form, then graph.

Convert each of the following to vertex form. Graph the parabola, then complete the box.

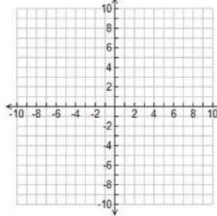
1) $y = x^2 - 6x + 8$
 $a = 1$ $b = -6$ $c = 8$
vertex:
 $\frac{-b}{2a} = \frac{6}{2} = 3$ } x value
 $3^2 - 6(3) + 8$ } y value
 $-9 + 8$ }
 -1



Domain $(-\infty, \infty)$
 Range $[-1, \infty)$
 Max/Min $(3, -1)$
 Increasing $(3, \infty)$
 Decreasing $(-\infty, 3)$
 cross x axis $(2, 0) + (4, 0)$
 cross y axis $(0, 8)$

Vertex form: $y = (x - 3)^2 - 1$

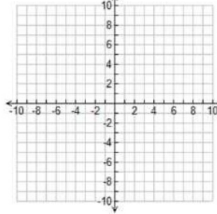
2) $y = -2x^2 + 4x + 6$



Domain _____
 Range _____
 Max/Min _____
 Increasing _____
 Decreasing _____
 x-intercept _____
 y-intercept _____

Vertex form: _____

3) $y = x^2 + 6x + 11$



Domain _____
 Range _____
 Max/Min _____
 Increasing _____
 Decreasing _____
 x-intercept _____
 y-intercept _____

Vertex form: _____